

Minutes of the
Board of Minerals and Environment Meeting
Matthew Environmental Education and Training Center
523 East Capitol Avenue
Pierre, South Dakota

10:00 a.m. CDT
April 16, 2003

CALL TO ORDER AND ROLL CALL: Chairman Richard C. Sweetman called the meeting to order. He appointed Wilbert Blumhardt as secretary pro tem. Mr. Blumhardt noted that a quorum was present.

BOARD MEMBERS PRESENT: Richard Sweetman, Lee McCahren, Wilbert Blumhardt, Chuck Monson, and Pat Healy.

BOARD MEMBERS ABSENT: Brian Radke, Mike DeMersseman, Kathy Johnson, and Linda Hilde.

OTHERS PRESENT: See attached attendance sheet.

APPROVAL OF MINUTES FROM MARCH 19, 2003, MEETING: Motion by Monson, seconded by Blumhardt, to approve the minutes of the March 19, 2003, Board of Minerals and Environment telephone conference call meeting, as mailed. Motion carried.

PROPOSED AMENDMENTS TO AIR QUALITY RULES: At the March 19, 2003 meeting, the board authorized the department to advertise for a public hearing to take place at the May 14, 2003, meeting to consider amendments to the air quality rules.

Brian Gustafson reported that EPA is still reviewing the proposed rule changes, so the public hearing will be scheduled for the July 2003 board meeting, rather than the May meeting.

SURFACE MINING ISSUES: Eric Holm was administered the oath by Lee McCahren. He testified regarding releases of liability and transfers of liability (see attached matrix sheet).

Transfers of Liability: Motion by Healy, seconded by Blumhardt, to transfer liability for one site in Charles Mix County from Boyden Construction, Platte, SD, Mine License No. 85-313 to Schultz Ready Mix, Avon, SD, Mine License No. 95-564; and transfer liability for one site in Minnehaha County from Friessen Construction, Inc., Sioux Falls, SD, Mine License No. 83-129 to Jerke Construction Company, Sioux Falls, SD, Mine License No. 86-322. Motion carried.

Releases of Liability: Motion by Monson, seconded by Blumhardt, to release liability for two sites in Corson County for Aggregate Construction, Inc., Minot, ND, Mine License No. 89-382; release liability for one site in Jerauld County for Wenzel Trucking, Mitchell, SD, Mine License No. 86-321; and release liability for one site in Corson County and one site in Sully County for DOT - Pierre Region, Pierre, SD, Mine License No. 83-10. Motion carried.

UPDATE ON PACER CORPORATION'S APPLICATION FOR A NEW MILL SITE AT ITS BRITE-X MINE: Mr. Holm reported that the department received a letter from Pacer Corporation indicating that the company is looking at other areas for a new mill site. Mr. Holm noted that if Pacer builds a mill by itself and not in conjunction with the mine site, they don't need a mine permit. Pacer will need to obtain an air quality permit for the mill.

Mr. Holm noted that Pacer is considering modifications to their operating reclamation plan at the Brite-X mine that is currently covered under Mine Permit No. 311.

OIL AND GAS HEARING NO. 2-2003 - LUFF EXPLORATION COMPANY: Chairman Sweetman turned the gavel over to Lee McCahren, who had been appointed hearing chairman for this matter. Mr. McCahren opened the hearing at 10:30 a.m. CDT.

The purpose of the hearing was to consider the application of Luff Exploration Company for operation of a unit to be known as the East Harding Springs Red River Unit to operate in the "B" Zone of the Red River Formation in the southwest quarter of Section 29, southeast quarter of Section 30, northeast quarter and south half of Section 31, and all of Section 32, Township 23 North, Range 6 East Black Hills Meridian, and all of Section 5, all of Section 6, the north half of Section 7, and the north half of Section 8, Township 22 North, Range 6 East, Black Hills Meridian, Harding County, South Dakota.

Notice of the public hearing was published on February 6 and 13, 2003, in the Pierre Capital Journal, Rapid City Journal, Nation's Center News and Black Hills Pioneer. Affidavits of Publication are on file at the DENR office in Rapid City.

The board members and parties introduced themselves.

Roxanne Giedd, assistant attorney general, represented the Department of Environment and Natural Resources.

Scott Sumner, attorney from Rapid City, represented Luff Exploration Company.

Michael Hickey, attorney from Rapid City, represented Milo Downing and Thomas Kalisiak, the intervenors.

Other intervenors were the Miller Family, represented by John Burke, attorney from Belle Fourche, and Pawnee Oil Corporation, represented by Max Main, attorney from Belle Fourche. These parties reached an agreement with Luff Exploration Company prior to this hearing, so were not present at the hearing.

The attorneys offered opening statements.

Richard George, manager of engineering, was administered the oath by Mr. McCahren and testified on behalf of Luff Exploration Company.

Exhibits offered and received into the record for Luff Exploration Company:

Exhibit 1-1 -Area Map

Exhibit 1-2 - Proposed East Harding Springs Red River Unit and existing spacing units, East Harding Springs Field, Pete's Creek Field

Exhibit 1-3 - Table showing all the Red River Units in South Dakota and what the formulas were for those units

Exhibit 2-1 - Map showing unit boundary

Exhibit 3-1 - Logs, Log Quality Issues and Well Density Issues

Exhibit 3-2 - Map of Seismic (2D & 3D) Control

Exhibit 3-3 - Structure Map, Top of Red River Formation

Exhibit 3-4 - Red River B producing oil cut fraction, correlation from ICS using map constructions, oil cut from drill stem tests and production

Exhibit 3-5 - Red River B Zone production oil cut fraction

Exhibit 3-6 - Oil saturation from producing oil cut based on oil-water relative permeability used in simulation model

Exhibit 3-7 - Red River B Zone oil saturation from oil cut fraction

Exhibit 3-8 - East Harding Springs paleo-topographic structure

Exhibit 3-9 - East Harding Springs gross thickness - upper B Zone porosity

Exhibit 3-10 - East Harding Springs gross thickness - lower B Zone porosity

Exhibit 3-11- Hydrocarbon Pore Volume

Exhibit 3-12 - Moveable Oil Pore Volume

Exhibit 4-1 - Downing #1 compensated neutron litho-density log

Exhibit 4-2 - Dworshak 1-30 (vertical completion) compensated neutron log

Exhibit 4-3 - Swanson 1-32 (vertical completion) cased hole - compensated neutron log

Exhibit 4-4 - Red River B porosity for Milo Downing 1-P and Swanson 1-32

Exhibit 4-5 - Red River B porosity for Kalisiak 1 and Downing 1

Exhibit 4-6 - Log analysis and So-phi-H determination

Exhibit 4-7 - Downing #1 compensated neutron litho-density log

Exhibit 4-8 - Downing #1 azimuthal resistivity imager log

Exhibit 4-9 - Joyce Miller 1-P compensated neutron - formation density log

Exhibit 4-10 - Joyce Miller 1-P dual laterolog resistivity log

Exhibit 4-11 - Milo Downing 1-P neutron density log

Exhibit 4-12 - Comparison of Red River B Zone drill stem tests

Exhibit 4-13 - Allocation of cumulative oil, Dworshak 1-30 and Swanson 1-32

Exhibit 4-14 - Bottom hole pressure graph

Exhibit 4-15 - Bottom hole pressure graph

Exhibit 5-1 - Explanation of existing secondary recovery unit

Exhibit 5-2 - Map, North Buffalo Red River Unit

Exhibit 5-3 - Graph, N. Buffalo Red River Unit - Buffalo

Exhibit 5-4 - Graph, N. Buffalo Red River Unit - Buffalo

Board of Minerals and Environment
April 16, 2003, Meeting Minutes

Exhibit 5-5 - Water cut graph, N. Buffalo Red River Unit - Buffalo
Exhibit 5-6 - Water cut graph, N. Buffalo Red River Unit - Buffalo
Exhibit 5-7 - Amor South - Red River Unit, Bowman County, ND
Exhibit 5-8 - 3D seismic correlation - Amor - Medicine Pole Hills Area
Exhibit 5-9 - Graph, Amor South - Red River Unit - Amor
Exhibit 5-10 - Graph, Amor South - Red River Unit - Amor
Exhibit 5-11 - Graph, Huron etal #4-1 - Ives
Exhibit 5-12 - Graph, Canter Roger E 1-33 - Austin (Red River)
Exhibit 5-13 - Graph, 1-6 Hansen - Grand River
Exhibit 5-14 - Development history, wells in proposed East Harding Springs Red River Unit, East Harding Springs and Pete's Creek fields
Exhibit 5-15 - Graph, Dworshak 1-30, NE SE - East Harding Springs
Exhibit 5-16 - Water cut graph, Dworshak 1-30, NE SE - East Harding Springs
Exhibit 5-17 - Graph, 1-30 Dworshak - Horizontal "B" - East Harding Springs
Exhibit 5-18 - Water cut graph, 1-30 Dworshak - Horizontal "B" - East Harding Springs
Exhibit 5-19 - Graph, 1-30 Dworshak - Horizontal "B" Zone
Exhibit 5-20 - Daily water cut graph, 1-30 Dworshak - Horizontal "B" Zone
Exhibit 5-21 - Graph, Joyce Miller 1P, SWNW - Harding Springs East
Exhibit 5-22 - Graph, Joyce Miller 1P, SWNW - Harding Springs East
Exhibit 5-23 - Water cut graph, Joyce Miller 1P, SWNW - Harding Springs East
Exhibit 5-24 - Graph, 1-32 Swanson - East Harding Springs
Exhibit 5-25 - Water cut graph, 1-32 Swanson - East Harding Springs
Exhibit 5-26 - Graph, 1-32 Swanson - Horizontal "B" - East Harding Springs
Exhibit 5-27 - Water cut graph, 1-32 Swanson - Horizontal "B" - East Harding Springs
Exhibit 5-28 - Graph, 1-32 Swanson - Horizontal "B" Zone
Exhibit 5-29 - Daily water cut graph, 1-32 Swanson - Horizontal "B" Zone
Exhibit 5-30 - Graph, Downing #1, Pete's Creek
Exhibit 5-31 - Graph, Downing #1, Pete's Creek
Exhibit 5-32 - Water cut graph, Downing #1, Pete's Creek
Exhibit 5-33 - Proved developed producing (PDP) reserves under primary recovery
Exhibit 5-34 - Proposed East Harding Springs Red River Unit
Exhibit 5-35 - Proved developed producing (PDP) reserves under primary recovery (Revised)
Exhibit 5-34 - Proposed East Harding Springs Red River Unit (Revised)
Exhibit 5-35 - East Harding Springs Red River Unit
Exhibit 5-36 - Volumes by Tract
Exhibit 5-37 - Reservoir simulation
Exhibit 5-38 - Oil Saturation (So) from oil cut fraction, overlay on reservoir computer simulation grid, oil saturation used in predictive computer models
Exhibit 6-1 - General assumptions for incremental economics
Exhibit 6-2 - Graph, EHSRRU - Model - PDP - East Harding Springs
Exhibit 6-3 - Description of Case WF 1
Exhibit 6-4 - Graph, EHSRRU - Model - WF 1 - East Harding Springs
Exhibit 6-5 - Estimated capital expenditures, WF 1 Case
Exhibit 6-6 - Estimated monthly lease operating expenses, WF 1 Case
Exhibit 6-7 - Water flood case WF 1 from Mark Sippel's reservoir model minus PDP projection, also from Mr. Sippel's reservoir model, Effective May 1, 2003

Board of Minerals and Environment
April 16, 2003, Meeting Minutes

Exhibit 6-8 - Description of Case WF 2b
Exhibit 6-9 - Graph, EHSRRU - Model - WF 2b - East Harding Springs
Exhibit 6-10 - Estimated capital expenditures, WF 2b Case
Exhibit 6-11 - Estimated monthly lease operating expenses, WF 2b Case
Exhibit 6-12 - Water flood Case WF 2b from Mark Sippel's reservoir model minus PDP projection, also from Mr. Sippel's reservoir model, Effective May 1, 2003
Exhibit 6-13 - Description of Case WF 3b
Exhibit 6-14 - Graph, EHSRRF - Model 0 WF3b - East Harding Springs
Exhibit 6-15 - Estimated capital expenditures, WF 3b Case
Exhibit 6-16 - Estimated monthly lease operating expenses, WF 3b Case
Exhibit 6-17 - Water Flood Case WF 3b from Mark Sippel's reservoir model minus PDP projection, also from Mr. Sippel's reservoir model, Effective May 1, 2003
Exhibit 7-1 - Moveable Oil Pore Volume, WF 3b development case
Exhibit 7-2 - Injection water supply

Mr. Sumner also offered the Unit Agreement with attachments, the Unit Operating Agreement with attachments, and a news article on ICS technology. These documents were accepted into the record.

Mr. Sumner requested the board enter an Order adopting the Unit Agreement, the Unit Operating Agreement as governing documents for the East Harding Springs Red River Unit encompassing the acreage identified in the exhibits under the terms and provisions that are proposed.

Ms. Giedd and Mr. Hickey called no witnesses.

Motion by Healy, seconded by Monson, to approve Oil and Gas Case No. 2-2003, contingent upon the appropriate ratifications being signed and submitted. Motion carried.

Mr. Sumner presented the proposed Findings of Fact, Conclusions of Law and Order.

Mr. Hickey requested the opportunity to review the Findings of Fact and Conclusions of Law.

Motion by Blumhardt, seconded by Monson, to adopt the Findings of Fact, Conclusions of Law and Order and to authorize Mr. McCahren to execute the Order, contingent upon receipt of the appropriate ratifications and providing there are no objections by Mr. Hickey. Motion carried.

Mr. McCahren thanked the participants and declared the hearing closed. He turned the gavel back over to Chairman Sweetman.

A court reporter was present for this hearing and a transcript of the proceedings was prepared by Capital Reporting Services, PO Box 903, Pierre, SD 57501; telephone number 605-224-7611.

The meeting was also tape recorded and duplicate cassette tapes may be obtained by contacting the Department of Environment and Natural Resources, 523 East Capitol Avenue, Pierre, SD 57501; telephone number 605-773-3886.

Board of Minerals and Environment
April 16, 2003, Meeting Minutes

OTHER BUSINESS: Chairman Sweetman announced that the next board meeting will be Wednesday, May 14, 2003, in Pierre.

The board will not meet in June.

ADJOURNMENT: Chairman Sweetman declared the meeting adjourned.


Secretary Date 5/14/03


Witness Date 5-14-03

BOARD OF MINERALS AND ENVIRONMENT MEETING

Date 4-16-03

REPRESENTING

5D1

South Dakota Board of Minerals & Environment

April 17, 2003

License/Permit Holder	License/ Permit	Site No..	Surety Amt.	Surety No.	Surety Company/Bank	DENR Recommendation
<u>Transfers of Liability:</u>						
Boyden Construction Platte, SD	85-313	313004	\$20,000	116951	Frontier Insurance Company	Transfer liability.
Transfer to:			SW1/4 Section 1; T95N-R65W, Charles Mix			
Schultz Ready Mix Avon, SD	95-564		\$3,500	6891	Community State Bank, Avon	
Friessen Construction Inc. Sioux Falls, SD	83-129	129007	\$20,000	538279	Ohio Farmers Insurance Company	Transfer liability.
Transfer to:			NW1/4 SW1/4. Section 16; T101N-R50W, Minnehaha			
Jerke Construction Company Sioux Falls, SD	86-322		\$20,000	55161301	United Fire & Casualty Company	
<u>Releases of Liability:</u>						
Aggregate Construction, Inc. Minot, ND	89-382	382013	\$20,000	040 40 95	Great American Insurance Company	Release liability.
			NE1/4 Section 1; T19N-R27E, Corson			
		382014	SE1/4 Section 36; T20N-R27E, Corson			

South Dakota Board of Minerals & Environment

April 17, 2003

April 17, 2003

<u>License/Permit Holder</u>	<u>License/ Permit</u>	<u>Site No.</u>	<u>Surety Amt.</u>	<u>Surety No.</u>	<u>Surety Company/Bank.</u>	<u>DENR Recommendation</u>
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Releases of Liability:

Wenzel Trucking Mitchell, SD	86-321		\$20,000	RC-0003	Sun Surety Insurance Company	Release liability.
		321013	Section 29; T107N-R67W, Jerauld			

DOT - Pierre Region Pierre, SD	83-10		EXEMPT	NA	NA	
		10169	NE1/4 NE1/4 Section 1; T19N-R27E, Corson			Release liability.
		10002	E1/2 SE1/4 Section 36; T113N-R76W & W1/2 SW1/4 Section 31; T113N-R75W, Sully			